

MINNESOTA STATE DEPARTMENT OF PUBLIC SAFETY



Alcohol &
Gambling
Enforcement

Bureau of
Criminal
Apprehension

Capitol Security

Crime Victim
Services

Driver & Vehicle
Services

Emergency
Management /
Emergency
Response
Commission

State Fire
Marshal /
Pipeline Safety

State Patrol

Traffic Safety



State Fire Marshal Division

444 Cedar Street, Suite 145, St. Paul, Minnesota 55101-5145

Phone: 651/201-7200 FAX: 651/215-0525 TTY: 651/282/6555

Internet: <http://www.fire.state.mn.us>

EDUCATIONAL (GROUP E) INFORMATION SHEET

SECTION 1 — INTRODUCTION

This fire safety information sheet is based on the 2007 Minnesota State Fire Code (MSFC) and the 2007 Minnesota State Building Code (MSBC). It contains a summary of the rules that apply to educational buildings in the state of Minnesota.

1.1 Inspection Frequency

Pursuant to Minnesota Stat. § 299F.47 the State Fire Marshal is required to inspect every public and charter school at least once every three years. The school districts are charged a fee determined by the square footage. Local units of government can complete these inspections if they conducted school inspections between 1/1/87 and 1/1/90 and will inspect in accordance with State Fire Marshal Policies.

1.2 Definitions

Educational Group E-Educational Group E occupancy includes any building used for educational purposes through the 12th grade by six or more persons older than 2-1/2 years of age shall be classified as an E occupancy.

Child day care-The use of a building or structure, or portion thereof, for educational, supervision or personal care services for more than five children older than the age of 2 ½ years shall be classified as an E occupancy.

Adult day care-An adult day care center serving six or more ambulatory and mobile persons who are capable of taking appropriate action for self-preservation under emergency conditions as determined by licensure provisions shall be classified as an E occupancy. See part 7510.3675 for the protection requirements for facilities serving both participants who are capable and not capable of taking appropriate action for self-preservation.

For requirements relating to child day care, see the State Fire Marshal Division Fact Sheet titled, *Child Care Centers*. For requirements relating to Adult day care facilities, see the State Fire Marshal Division Fact Sheet titled, *Adult Day Care Information Sheet*.

Educational buildings constructed before July 10, 2007 are considered existing buildings and are required to meet the minimum requirements specified in MSFC (07) for existing buildings. Compliance with previous editions of the Minnesota Uniform Fire Code (MUFC) could be considered as an acceptable alternative. Buildings constructed on or after July 10, 2007 are considered new and are required to meet the 2007 MSFC provisions for new buildings.

Educational occupancies may be required to meet other provisions that are not listed in this information sheet. This document provides an overview of the major code requirements that apply to educational occupancies and does not attempt to cover every situation. References to the applicable code sections are found in brackets, [].

More information is available from the Minnesota State Fire Marshal Division at (651) 201-7200. Email questions to firecode@state.mn.us or check our web page at www.fire.state.mn.us for the latest information on fire in Minnesota.

SECTION 2 – GENERAL FIRE SAFETY PROVISIONS

2.1 Combustible Waste Material – New and Existing

Combustible waste material creating a fire hazard shall not be allowed to accumulate in buildings [MSFC (07) Section 304.1].

Dumpsters must be outside and at least 5 feet from combustible walls or openings [MSFC (07) Section 304.3.3].

Complies ☐ Does not comply ☐

2.2 Storage of Combustible Materials – New and Existing Occupancies

Storage shall be orderly [MSFC (07) Section 315.2]. Storage shall be maintained at least 2 feet below the ceiling in nonsprinklered areas, or at least 18 inches below sprinkler head deflectors in sprinklered areas of buildings [MSFC (07) Section 315.2.1].

The State Fire Marshal Division has a policy specific to educational occupancies regarding the placement of combustible items in boiler/furnace rooms, mechanical rooms, electrical equipment rooms and elevator equipment rooms. For additional information on this policy please review the State Fire Marshal Division Policy titled, *Storage Within Boiler and Mechanical Rooms in Non-Sprinkled Buildings*.

2.2.1 Boiler and Furnace Rooms. Combustible storage within boiler and furnace rooms with equipment having 400,000 BTU per hour input or less is allowed when such rooms or areas are protected with an approved automatic fire extinguishing system (i.e. fire sprinkler protection). Combustible storage shall be maintained at least 36 inches from fuel-fired equipment [MSFC (07) Section 315.2.3.1]. Combustible storage within boiler and furnace rooms with equipment having over 400,000 BTU per hour input is allowed when such rooms or areas are protected with an approved automatic fire extinguishing system (i.e. fire sprinkler protection). Combustible storage shall be maintained at least 10 feet from the boiler or furnace [MSFC (07) Section 315.2.3.1].

2.2.2 Mechanical Rooms. Combustible storage is allowed within mechanical rooms

when such rooms or areas are equipped throughout with an approved automatic fire extinguishing system. Storage shall be neat and orderly, with 36 inch access aisles maintained to all equipment. In addition, combustible storage shall be maintained at least 36 inches from fuel-fired equipment [MSFC (07) 315.2.3.2].

2.2.3 Electrical Rooms. Combustible storage is not allowed within electrical distribution equipment rooms or elevator equipment rooms [MSFC (07) Section 315.2.3.3 & 315.2.3.4].

Complies ☐ Does not comply ☐

2.3 Fire Apparatus Access Roads – New

For all newly constructed educational buildings, approved fire apparatus access roads shall be provided and maintained [MSFC (07) Section 503.1.1]. See the SFMD Information Sheet titled, Fire Department Access for more information.

Complies ☐ Does not comply ☐

2.4 Water Supply – New

For all newly constructed educational buildings, an approved water supply capable of providing the required fire flow for fire protection shall be provided. Fire flow requirements shall be determined by an approved method [MSFC (07) Section 508]. See the SFMD Information Sheet titled, Fire Department Water Supplies for more information.

Complies ☐ Does not comply ☐

2.5 Kitchen Cooking Equipment – New and Existing

Commercial cooking equipment that produces grease-laden vapors shall be equipped with a ventilation hood and duct system meeting the requirements of the Mechanical Code [MSFC (07) Section 609.1]. See Section 9 of this document for information on fire extinguishers.

Commercial cooking equipment that produces grease-laden vapors shall be equipped with an approved fire-suppression system [MSFC (07) Section 904.2.1]. If cooking does not create grease laden vapors at any time and a conspicuous sign stating “This kitchen is not equipped with a hood fire-suppression system and must not be used for any cooking that produces grease vapors”, then a hood fire-suppression system will not be required.

Complies ☐ Does not comply ☐

2.6 Premises Identification – New and Existing

Approved numbers or addresses shall be placed on all new and existing buildings in such manner to be plainly visible and legible from the street or road fronting the property. The premises identification numbers shall contrast with their background. In rural areas, the use of fire numbers is acceptable [MSFC (07) Section 505.1].

Complies ☐ Does not comply ☐

2.7 Storage of Combustible Materials – New and Existing

Storage shall be orderly [MSFC (07) Section 315.2]. Fueled equipment (motorcycles, lawnmowers, etc.) shall not be stored, operated or repaired within a building with the exception of rooms constructed for such use in accordance with the State Building Code [MSFC (07) Section 313.1]. Combustible materials shall not be stored within exits or exit enclosures [MSFC (07) Section 315.2.2].

Unless protected by an approved automatic sprinkler system, attic, under-floor and concealed spaces used for storage of combustible materials shall be protected on the storage side as required for one-hour fire-resistive construction. Openings shall be protected by assemblies that are self-closing and are noncombustible construction or solid wood core not less than 1.75 inches in thickness. Storage shall not be placed on exposed joists [MSFC (07) Section 315.2.4].

Complies ☐ Does not comply ☐

2.8 Fire Safety and Evacuation Plans – New and Existing

An approved fire safety and evacuation plan shall be prepared and maintained [MSFC (07) Section 404.2].

Complies ☐ Does not comply ☐

2.9 Fire Drills

MN Statute requires public, private and charter schools to conduct a minimum of five fire drills each school year. The 1st fire drill must be within 10 days of the beginning of school [MSFC Section 408.3.2]. Fire drills must be conducted at different hours of the day, under different conditions and occupants must be accounted for after evacuating the building [MSFC Section 408.3.3].

Complies ☐ Does not comply ☐

2.10 Planetariums

For information on the use of portable inflatable planetariums in educational occupancies please refer to State Fire Marshal Division Policy titled *Planetariums in Schools*.

Complies ☐ Does not comply ☐

2.11 Portable heaters

For information on the use of portable electric space heaters in educational occupancies please refer to State Fire Marshal Division Policy titled *Portable Heaters in Educational Occupancies*.

Complies ☐ Does not comply ☐

2.12 Staff Training

Staff shall be familiar with the fire alarm and evacuation signals, their assigned duties in the event of an alarm or emergency, evacuation routes, areas of refuge, exterior assembly areas and procedures for evacuation.

Complies ☐ Does not comply ☐

2.13 Occupancy specific inspections

Auditoriums, cafeterias, gymnasiums and other assembly occupancies located in Group E occupancies are inspected to assembly (Group A) occupancy requirements. For more information on assembly occupancy requirements please refer to the State Fire Marshal Division Information Sheet titled *Assembly Occupancy Information Sheet*.

Complies ☐ Does not comply ☐

2.14 Furniture flammability requirements for assembly occupancies-new & existing

Seating furniture sold after January 1, 1992 and intended for use in only in public assembly areas of schools such as the auditorium, gym, or cafeteria containing more than ten articles of seating furniture shall meet applicable flammability requirements as set out by rules adopted under section Minn. Stat. § 299F.844.

Complies ☐ Does not comply ☐

2.15 Science lab safety checklist

According to MN Statute 121A.31 the Department of Education, in cooperation with the Minnesota State Fire Marshal Division, must develop guidelines for school lab safety. The guidelines shall include a list of safety requirements and an explanation of the minimum state and national laws, codes, and standards affecting school lab safety the Minnesota state fire marshal considers necessary for schools to implement. The district superintendent shall ensure that every school lab within the district complies with the school lab safety requirements. Lack of funding is not an excuse for noncompliance. A school science laboratory is defined as a classroom where demonstrations and/or laboratory instructions are provided for individual or group experiments in which hazardous chemicals or gases are used. These areas may include chemistry classrooms, rooms used for student experiments, and prep areas.

For more information on science lab safety, please refer to the *Science Lab Safety Checklist* available on the State Fire Marshal Division web site.

Complies ☐ Does not comply ☐

SECTION 3 – SPECIAL EXITING PROVISIONS FOR YOUNG CHILDREN

3.1 Level of Exit Discharge - New and Existing

Rooms and areas used for educational purposes such as child day care, preschool, head-start and similar programs classified as a Group E occupancy that are located in existing school buildings shall be placed on the floor level of exit discharge [MSFC (07) Section 1001.3; MSBC (07) Section 419]. Exceptions for buildings equipped with automatic sprinkler and/or fire alarm systems are as follows:

Buildings Protected with an Automatic Fire Sprinkler and Fire Alarm System

Rooms and areas may be located on any floor level below the fourth story if the following conditions exist:

1. The building is protected throughout with an approved automatic fire sprinkler system; and

2. The building is protected throughout with an approved automatic fire alarm system having automatic smoke detection devices installed throughout the exiting system and within every room or area used for any purposes other than a classroom or office.

Buildings Protected with an Automatic Fire Sprinkler or Fire Alarm System

Rooms or areas may be located on floor levels other than the level of exit discharge if one of the following conditions is met:

1. An approved automatic fire sprinkler system is provided throughout the building and the use of the affected room or space is limited to one grade level at a time and exiting is provided from the room or area which is independent from the exiting system used by older students or other occupancies; or
2. An approved automatic fire alarm system is provided throughout the building consisting of automatic smoke detection installed throughout the exiting system and within all rooms and areas other than classroom and office areas, and the use of the affected room or space is limited to one grade level at a time, and exiting is provided from the room or area which is independent from the exiting system used by older students or other occupancies.

Note: For the purposes of Section 3.1, pupils from the second grade down are considered one grade level.

3.2 Accessory Spaces – New and Existing

Accessory spaces, including spaces used for gymnasiums, cafeterias, media centers, auditoriums, libraries, and band and choir rooms, used on an occasional basis by preschool, kindergarten, first and second grade students are permitted to be located one level above or one level below the story of exit discharge if the building is protected throughout by an approved automatic sprinkler system or an approved corridor smoke detection system [MSFC (07) 1001.3; MSBC (07) 419.2.3].

3.3 Additional Information

For additional information on special exiting requirements for younger students inside educational occupancies please refer to our information sheet on Special Exiting Provisions.

Complies ☐ Does not comply ☐

SECTION 4 – MEANS OF EGRESS

4.1 New and Existing Buildings

The means of egress requirements within this section pertain to both new and existing buildings.

Exception: Means of egress conforming to the requirements of the building code under which they were constructed shall be considered as complying means of egress if, in the opinion of the code official, they do not constitute a distinct hazard to life [MSFC (07) Section 1027.1.2].

4.2 Number and Type of Exits – New and Existing

Every room or area shall have access to at least one approved exit. Access to at least two exits shall be provided when the occupant load exceeds 50 for Group E Occupancies [MSFC (07)

Section 1015.1]. In a building without an automatic sprinkler system these doors must be located at least $\frac{1}{2}$ the diagonal of the room or area apart. When the building is equipped throughout with and approved automatic sprinkler system these doors may be located $\frac{1}{3}$ of the diagonal apart. When the occupant load is between 501 and 1,000 in an area or room, there must be 3 exit doorways located reasonably remotely. When the occupant load is over 1,000 there must be at least 4 remotely located exit doorways.

Floor areas shall be provided with exits as required by MSFC (07) Section 1019.1.

In new construction, a science lab that contains or uses hazardous materials and is in excess of 500 sq. ft. must have 2 remote exit doors [MSFC (07) Section 1015.1]

Existing science labs inside educational occupancies where hazardous materials are used shall be provided with two exits when the space exceeds 1,000 square feet in size [MSFC (07) Section 1027.23.4].

To determine the occupant load, divide the total net square footage of the rooms or areas to be used by the occupant load factor in Table 4.2.

Table 4.2 Minimum Egress Requirements

Occupancy Type	Minimum of Two Exits Required When the Number of Occupants Exceeds	Minimum of Two Exits Required When the Square Footage Exceeds	Occupant Load Factor (square feet per person)
E	50	1000 square feet	20

Shops and vocational rooms such as woodshops, metal shops, auto shops, art rooms, family and consumer science rooms (FACS), etc. located inside educational occupancies shall be provided with at least two exits when the room or space exceeds 2,500 square feet.

Complies ☐ Does not comply ☐

4.3 Locking Devices – New and Existing

Exit doors shall be openable from the inside without the use of a key or any special knowledge or effort. Exit doors shall not be locked, chained, bolted, barred, latched or otherwise rendered unusable. All locking devices shall be of an approved type [MSFC (07) Section 1008.1.8].

Any exit or exit access door serving an occupant load of 50 or more within Group E occupancies shall not be provided with a latch or lock unless such components are integral with approved panic hardware or fire exit hardware [MSFC (07) Section 1008.1.9]. Previous code editions did not require panic hardware until the occupant load equaled or exceeded 100. In existing educational occupancies, panic hardware will not be required unless the occupant load equals or exceeds 100 unless there are other exiting issues as determined by the code official.

Complies ☐ Does not comply ☐

4.4 Exit Doors – New and Existing

Doors within the means of egress shall be side-hinged swinging. Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons [MSFC (07) Section 1008.1.2].

Complies ☐ Does not comply ☐

4.5 Exit Width – New and Existing

The means of egress width shall not be less than required by the MSFC as determined by the occupant load served [MSFC (07) Section 1005.1]. The minimum width of each door opening shall be sufficient for the occupant served as determined by MSFC (07) Section 1008.1.1 or shall provide a clear width of not less than 32 inches in new construction, 28" in existing construction, whichever is greater [MSFC (07) Section 1008.1.1; 1027.7.1].

Corridor width shall be as determined in MSFC (07) Section 1005.1, but shall not be less than 72" when serving an occupant load of 100 or more, not less than 44 inches when serving an occupant load of 50 to 99 and not less than 36 inches when serving an occupant load of 50 or less [MSFC (07) Section 1017.2].

Complies ☐ Does not comply ☐

4.6 Dead End Corridors – New and Existing

Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead end corridors do not exceed 20 feet in length in new construction and for existing construction the dead-end corridor can be 2.5 times the width of the corridor. Fully sprinklered Group E Occupancies constructed prior to 1975 are allowed to have dead end corridors up to 35 feet in length [MSFC (07) Section 1017.3, new; MSFC (07) Section 1027.17.4, existing].

Complies ☐ Does not comply ☐

4.7 Common Path of Egress Travel – New and Existing

The maximum travel distance from any point within a building to a point where two separate and distinct paths of egress travel are available shall not exceed 75 feet [MSFC (07) Section 1014.3].

Complies ☐ Does not comply ☐

4.8 Exit Access Travel Distance – New and Existing

Exits shall be located so that the maximum length of exit access travel, measured from any point within a building to an exit or the entrance of an exit component along the natural and unobstructed path of egress travel, shall not exceed the following distances [MSFC (07) Section 1016.1].

Table 4.8 Exit Access Travel Distance

Occupancy Classification	Without Sprinkler System	With Sprinkler System
E	200 FT	250 FT

Complies ☐ Does not comply ☐

4.9 Egress through Intervening Spaces – New and Existing

Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such rooms or areas are accessory to the area served; are not a high-hazard occupancy; and provide a discernible path of egress travel to an exit. Egress shall not pass through kitchens, store rooms, closets or spaces used for similar purposes. An exit access shall not pass through a room which can be locked to prevent egress [MSFC (07) Section 1014.2].

When the only exit from a room having a total occupant load of 10 or more is exclusively through an intervening room, the intervening room must have a smoke detection system interconnected to the fire alarm or the intervening room must be protected with a complete automatic sprinkler system. When the building is equipped throughout with an approved automatic sprinkler system, this smoke detection system is not required.

Complies ☐ Does not comply ☐

4.10 Means of Egress Illumination – New and Existing

The means of egress in all new and existing buildings shall be illuminated at all times while the building is occupied [MSFC (07) Section 1006.1]. In the event of primary power loss, an approved back-up power source shall be provided for those areas requiring two or more means of egress [MSFC (07) Section 1006.3, new construction; MSFC (07) Section 1027.5, existing].

Complies ☐ Does not comply ☐

4.11 Means of Egress Identification – New and Existing

Exit and exit access doors shall be marked by approved exit signs readily visible from any direction of egress travel for both new and existing buildings in rooms or areas requiring more than one exit or exit access. Access to exits shall be marked by readily visible exit signs in cases where the exit or path of egress travel is not immediately visible to occupants. Exit sign placement shall be such that no point in an exit access corridor is more than 100 feet from the nearest visible exit sign [MSFC (07) Section 1011.1, new and existing]. Exit signs shall be internally or externally illuminated at all times. In the event of primary power loss, an approved back-up power source shall be provided [MSFC (07) Section 1011.5.3, new; MSFC Section 1027.4, existing].

Complies ☐ Does not comply ☐

4.12 Means of Egress Obstructions – New and Existing

Obstructions shall not be placed in the required width of a means of egress. The required capacity of a means of egress system shall not be diminished along the path of egress [MSFC (07) Section 1003.6].

Complies ☐ Does not comply ☐

4.13 Use of magnetic locks on exit doors

For information on the use of magnetic locking hardware in educational occupancies, please refer to the State Fire Marshal Division Policy titled *Magnetic Locks in Schools*.

Complies ☐ Does not comply ☐

4.14 Time-out rooms

Rooms or areas in educational occupancies are permitted to have special locking arrangements where the occupants are being restrained for safety or security reasons. All of the following sections shall apply. MN Statute 121A.67 contains some additional regulations for time-out rooms in schools.

4.14.1 Locking hardware

The locking devices shall release upon activation of any of the following conditions:

- (1) Activation of the automatic sprinkler system;
- (2) Activation of the any automatic fire detection device;
- (3) Automatic fire alarm system;
- (4) Loss of electrical power to the locking device or the fire alarm system, or
- (5) Activation of the fire alarm trouble signal.

All locking devices shall be designed to fail in the open position. Following the release of the locking devices for any of the conditions specified above, relocking of the devices shall be by manual means at the door.

4.14.2. Fire extinguishing system

When this type of locking arrangement is used, the room or area being secured must be protected with quick response sprinklers.

4.14.3. Fire alarm and detection

When special locking arrangements are used, the room or area and spaces between the room or area and an outside exit door shall be protected with automatic smoke detection connected to the building's fire alarm system. If the walls of the room or area do not extend to the ceiling, automatic smoke detection can be provided in the adjacent room or area, provided that there are no substantial obstructions to delay activation of the smoke detection.

4.14.4 Construction.

Rooms or areas containing these special locking arrangements shall be constructed of noncombustible materials having a minimum of one-hour fire-resistive construction. Doors separating the room from other spaces must swing with egress travel from the room and have a fire-protection rating of not less than 20 minutes. Doors need not be self-closing. The interior finish of the wall and ceiling surfaces must not exceed a Class III (or Class C) flame spread rating.

4.14.5 Testing of devices. Special locking arrangements shall be tested monthly to ensure that they will release under the conditions set forth above. Locking arrangements that are found not to comply with the requirements listed above shall not be used.

Routine fire drills as required in Section 2.8 above can be considered an acceptable testing procedure.

Complies ☐ Does not comply ☐

4.15 Storage under stairs

Unless protected by an approved automatic sprinkler system, storage rooms located under exit stairways shall be protected on the storage side as required for 1-hour fire resistive construction. Openings into these areas shall be protected with self closing doors that are noncombustible or solid-core wood not less than 1.75 inches thick.

Complies ☐ Does not comply ☐

4.16 Guardrails – New

Unguarded floor openings, open and glazed sides of stairways, landings and ramps and balconies or porches that are more than 30 inches above grade or the floor below shall be protected by guardrails in accordance with the MSFC [MSFC (07) Section 1013.1]. The guards shall have balusters or ornamental patterns such that a 4-inch diameter sphere cannot pass through any opening up to a height of 34 inches. From 34-42 inches above the adjacent walking surfaces, a sphere 8-inch in diameter shall not pass [MSFC (07) Section 1013.3].

Guardrails – Existing

Guards shall be provided at the open sides of means of egress that are more than 30 inches above the floor or grade below. The guards shall form a protective barrier not less than 42 inches high. Existing guards on the open side of stairs shall be not less than 30 inches high; open guards shall have balusters or ornamental patterns such that a 6-inch diameter sphere cannot pass through any opening up to a height of 34 inches. Existing open guards may be acceptable if approved by the code official [MSFC (07) Section 1027.6].

Complies ☐ Does not comply ☐

4.17 Handrails – New

Stairways shall have handrails on each side. Aisle stairs provided with a center handrail need not be provided with additional handrails. The height should be measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches and not more than 38 inches. Handrails with circular cross sections shall have an outside diameter of at least 1 ¼ inches and not greater than 2 inches or shall provide equivalent graspability. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6 ¼ inches with a maximum cross section dimension of 2.25 inches. The gripping surface of the handrail shall be continuous, without interruption by newel posts or other obstructions [MSFC (07) Section 1012].

Handrails – Existing

Stairway handrails in existing buildings shall have handrails on at least one side. They shall be located so that all portions of the stairway width required for egress capacity are within 44 inches of a handrail [MSFC (03) Section 1027.13].

Complies ☐ Does not comply ☐

4.18 Stairways – New

The width of stairways shall not be less than 44 inches. Stairways shall have a minimum headroom clearance of 80 inches measured vertically from a line connecting the edge of the nosings. Stair riser heights shall be 7 inches maximum and 4 inches minimum. Stair tread depths shall be 11 inches minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at right angle to the tread's leading edge. All stairways shall be built of materials consistent with the types permitted for the type of construction of the building [MSFC (07) Section 1009].

Stairways – Existing

Existing stairs in buildings shall be permitted to remain if the rise does not exceed 8 ¼ inches and the run is not less than 9 inches. Existing stairs can be rebuilt. Existing stairs may be acceptable if approved by the code official [MSFC (07) Section 1027.10].

Complies ☐ Does not comply ☐

4.19 Stairway Identification – New and Existing

Stairway identification signs are required in all enclosed stairways in buildings four or more stories in height [MSFC (07) Section 1020.1.6].

Complies ☐ Does not comply ☐

SECTION 5 – FIRE RESISTIVE CONSTRUCTION

5.1 Occupancy Separation – New

Educational occupancies shall be separated from other occupancies with fire-resistive occupancy separations in accordance with the Minnesota State Building Code [MSFC (07) Section 701.1].

Exception:

- (1) Except for Group H and I-2 areas, where the building is equipped throughout with an approved automatic sprinkler system, the fire-resistance ratings shall be reduced by one-hour but to not less than one-hour and to not less than that required for floor construction according to the type of construction.*
- (2) Assembly uses accessory to educational occupancies are not considered separate occupancies, therefore, no separation is required.*

TABLE 5.1 REQUIRED FIRE-RESISTIVE OCCUPANCY SEPARATIONS

Group E Occupancy	U	A, B, F-2, H-4, I, M, R, S-2	F-1, H-3, H-5, S-1	H-2	H-1
-------------------	---	---------------------------------	--------------------	-----	-----

Separation	1 HR	2 HR	3 HR	4 HR	Not Permitted
------------	------	------	------	------	---------------

5.1.1 Occupancy Separation – Existing

Existing Group E occupancies shall be separated from Group I and Group R occupancies in accordance with the State Building Code. See Table 5.1 of this document for details [MSFC (07) Section 705]. In addition, because Group H (Hazardous) occupancies are classified as such due to the presents of sufficient quantities of hazardous materials, existing Group E occupancies shall also be separated from all Group H occupancies in accordance with the State Building Code [MSFC (07) Section 102.2].

Previous editions of the MUFC required occupancy separations between child care centers and most other occupancy types. Therefore, most existing child care centers that are lacking proper occupancy separations as prescribed by previous MUFC editions shall be provided with separations in accordance with the MSBC [MSFC (07) Section 102.1].

Complies ☐ Does not comply ☐

5.2 Accessory Use Areas – New and Existing

Accessory use occupancies are those occupancies subsidiary to the main occupancy of the building or portion thereof. For example, administrative offices within a school building would be considered an accessory use area. Except where required for incidental use areas, fire-resistive construction shall not be required for accessory use areas not occupying more than 10 percent of the area of any floor of a building [MSFC (07) Section 701.1].

Complies ☐ Does not comply ☐

5.3 Incidental Use Areas – New and Existing

New educational occupancies shall have their incidental use areas separated from the rest of the building by fire-resistive construction in accordance with the State Building Code [MSFC (07) Section 701.1].

Examples of incidental use areas include furnace rooms (over 400,000 Btu input); boiler rooms (over 15 psi and 10 hp); parking garages; laboratories and shops; waste, linen, laundry or storage rooms over 100 square feet.

In existing educational occupancies, shops; laboratories containing hazardous materials; storage rooms over 100 square feet; and rooms containing boilers or central heating plants (over 400,000 Btu input) shall be separated from the rest of the building by one-hour fire resistive construction [MSFC (07) Section 705.3].

Complies ☐ Does not comply ☐

5.4 Corridor Construction – New

All corridors serving an occupant load greater than 30 classified as Group E shall be of one-hour fire-resistive construction. All openings within one-hour fire-resistive corridors shall be

protected with listed 20-minute fire-rated assemblies. Fire doors shall be self-closing [MSFC (07) Section 1017.1]

Exceptions:

1. *Where the building is equipped throughout with an approved automatic sprinkler system.*
2. *Group E occupancies where each room used for child care has at least one door directly to the exterior at ground level and rooms for assembly purposes have at least one-half of the required means of egress doors opening directly to the exterior at ground level.*

5.4.1 Corridor Construction – Existing

All corridors serving an occupant load greater than 30 within child care centers classified as Group E shall be of one-hour fire-resistive construction. Door openings within one-hour fire-resistive construction shall be protected by a 20-minute fire-rated assembly, an insulated steel door, or solid core wood door not less than 1-3/4 inches thick. Fire doors shall self-closing [MSFC (07) Section 1027.17.1].

Exceptions:

1. *Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system.*
2. *Group E occupancies where the building is protected with an approved automatic fire alarm system which is monitored by an approved central station service. The fire alarm system shall include automatic smoke detection throughout the exiting system and approved detection in all rooms and areas other than classrooms and offices.*

Complies ☐ Does not comply ☐

5.5 Vertical Opening & Shaft Construction – New

Vertical openings and shafts within new educational occupancies shall be constructed in accordance with the State Building Code, Section 707 [MSFC (07) Section 701.1]. Generally, all openings through a floor/ceiling assembly shall be protected with a fire-resistance rated construction. Vertical openings and shafts shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and 1 hour where connecting less than four stories. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.

5.5.1 Vertical Opening & Shaft Construction – Existing

Vertical openings and shafts within existing educational occupancies shall be protected with fire-resistance rated construction in accordance with table 5.5.1 [MSFC (07) Section 704.1].

Table 5.5.1 Required Protection for Vertical Openings and Shafts

Occupancy Classification	Conditions	Protection Required
Group E	vertical openings connecting 2 stories	no protection required
Group E	vertical openings connecting 3 to 5 stories	1-hour protection or automatic sprinklers throughout

Group E	vertical openings connecting more than 5 stories	1-hour protection
---------	--	-------------------

Complies ☐ Does not comply ☐

5.6 Maintenance of Fire-Resistive Construction – New and Existing

All required fire-resistive construction and assemblies, including occupancy separations, area separation walls, exterior walls due to location on property, draft-stop partitions, separations of special hazards and hazardous areas, vertical opening protection and smoke barriers shall be provided and maintained as specified within the Minnesota State Building Code and the Minnesota State Fire Code and shall be properly repaired, restored or replaced when necessary [MSFC (07) Section 703.1 & 703.2].

Complies ☐ Does not comply ☐

SECTION 6 – INTERIOR FINISH AND DECORATION

6.1 Interior Finish – New & Existing

In general, interior finish within new and existing Group E occupancies shall meet the following flame spread requirements [MSFC (07) Section 801.1.1, new; MSFC (07) Section 803, existing].

Group E educational occupancies

Sprinklered Buildings

Rooms and Enclosed Spaces.....Class C

Exit Access Corridors and Exitways.....Class C

Vertical Exits and Exit Passageways.....Class B

Unsprinklered Buildings

Rooms and Enclosed Spaces.....Class C

Exit Access Corridors and Exitways.....Class B

Vertical Exits and Exit Passageways.....Class A

Exception: In vertical exits of buildings less than three stories in height, Class B interior finish for unsprinklered buildings and Class C for sprinklered buildings shall be permitted.

Complies ☐ Does not comply ☐

6.2 Interior Decorative Materials – New and Existing

Artwork and teaching materials shall be limited on walls and corridors to not more than 20 percent of the wall area for Group E occupancies[MSFC (07) Section 807.4.3.2, 807.4.4.2].

Complies ☐ Does not comply ☐

6.3 Storage in Corridors and Lobbies – New and Existing

Clothing and personal effects shall not be stored in corridors and lobbies of Group E occupancies [MSFC (07) Section 807.4.3.1 & 807.4.4.1].

Exceptions:

- 1. Corridors protected by an approved automatic sprinkler system.*
- 2. Storage in metal lockers provided the minimum required egress width is maintained.*

Complies ☐ Does not comply ☐

6.4 Stage curtains, decorations and other hangings

Stage curtains, decorations and other hangings located in assembly occupancies (theaters, gymnasiums, cafeterias, etc.) that exceed 20% of the wall surface must meet the flame propagation requirements of NFPA 701 (1999 Edition) or shall be noncombustible. These items must be retreated after 20 years or five dry cleanings, whichever comes first [MSFC (07) Section 807.1].

Complies ☐ Does not comply ☐

SECTION 7 – FIRE ALARM SYSTEMS

7.1 Required Fire Alarm Systems

7.1.1 Group E educational occupancies – New and existing

Group E educational occupancies having an occupant load of 50 or more shall be provided with an approved fire alarm system [MSFC (07) Section 907.2.3, new; MSFC (07) Section 907.3.2, existing].

Initiation. Initiation of the system shall be by manual and automatic means. Approved automatic fire detectors shall be provided in laundry rooms, boiler and furnace rooms, mechanical and electrical rooms, shops, laboratories, kitchens, locker rooms, janitor closets, trash-collection rooms, storage rooms, lounges and similar areas.

Exceptions:

- 1. Buildings protected throughout by an approved automatic sprinkler system, manual fire alarm boxes are only required in the main office and in a custodial area.*
- 2. Where the exiting systems are protected by approved automatic smoke detection with alarm verification, manual fire alarm boxes are only required near exits serving shops, chemistry and physics laboratories, boiler rooms, industrial technology and industrial arts rooms, kitchens, custodian's office, and the main office.*

System fire and smoke detectors are not required when an approved automatic fire extinguishing system is installed throughout the building.

Travel through adjoining rooms. Where the only means of egress travel from an interior room or rooms having an aggregate occupant load of more than 10 occupants is through an adjoining or intervening room, automatic smoke detectors shall be installed throughout the common atmosphere through which the path of egress travel passes.

Notification. Activation of the fire alarm system or automatic sprinkler systems shall initiate a general evacuation signal.

Complies ☐ Does not comply ☐

7.2 Smoke detector installation

One of the following requirements shall apply to smoke detector installation:

- (1) The distance between detectors shall not exceed their listed spacing, and there shall be detectors within a distance of one-half the listed spacing, measured at right angles from all walls or partitions extending upward to within the top 15 percent of the ceiling height.
- (2) All points on the ceiling shall have a detector within a distance equal to 0.7 times the listed spacing. For irregularly shaped areas, the spacing between detectors shall be permitted to be greater than the listed spacing, provided the maximum spacing from a detector to the farthest point of a sidewall or corner within its zone of protection is not greater than 0.7 times the listed spacing.

Complies ☐ Does not comply ☐

7.3 Elevator smoke detection-New buildings only

Smoke detectors connected to elevator equipment shall not activate a general evacuation signal (supervisory signal only). Other detectors or waterflow devices throughout the building shall not initiate the elevator recall function.

Complies ☐ Does not comply ☐

SECTION 8 – FIRE SPRINKLER AND STANDPIPE SYSTEMS

8.1 Required Fire Sprinkler Systems – New

An automatic sprinkler system shall be provided throughout all Group E fire areas greater than 20,000 square feet in area. An automatic sprinkler system shall also be provided for every Group E area below the level of exit discharge unless each classroom or care area has at least one exterior exit door at ground level [MSFC (07) Section 903.2.2].

Complies ☐ Does not comply ☐

8.2 Special Fire Sprinkler Requirements – New

Fire sprinkler protection may also be required for stories and basements in excess of 1500 square feet not provided with adequate openings to the exterior [MSFC (07) Section 903.2.10.1].

8.2.1 Special Fire Sprinkler Requirements – Existing

A fire sprinkler system shall be provided in basements containing Group E occupancies when such areas exceed 2500 square feet in size and do not have 20 square feet of opening entirely above the adjoining ground level in each 50 lineal feet or fraction thereof of exterior wall on at least one side of the building. Required openings shall have a minimum dimension of 30 inches. If any portion of the basement is located more than 75 feet from required openings, the basement shall be provided with an approved automatic sprinkler system throughout [MSFC (07) Section 903.6.2].

Complies ☐ Does not comply ☐

8.3 Standpipe Systems – New

See MSFC (07) Section 905 for complete information regarding standpipe systems.

Building Height

In general, a class III standpipe system shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet above the lowest level of fire department vehicle access, or where the floor level of the lowest story is located more than 30 feet below the highest level of fire department vehicle access [MSFC (07) Section 905.3.1].

Places of assembly exceeding an occupant load of 1,000 in nonsprinklered buildings are required to have a wet pipe Class 1 standpipe. [MSFC (07) Section 905.3.2].

Complies ☐ Does not comply ☐

8.3.1 Standpipe Systems – Existing

Standpipe systems complying with MSFC (07) Section 905 are required in existing buildings which have occupied floors located more than 50 feet above the lowest level of fire department access. The standpipes shall have an approved fire-department connection with hose connections at each floor level above or below the lowest level of fire department access [MSFC (07) Section 905.11].

Complies ☐ Does not comply ☐

SECTION 9 – FIRE EXTINGUISHERS

9.1 Fire Extinguisher Type and Location – New and Existing

At least one portable fire extinguisher having a minimum rating of 2A-10BC shall be available within 75 feet of all occupied areas. Travel to another floor level to obtain the extinguisher is not acceptable. Extinguishers shall be mounted and located in conspicuous locations where they will be readily accessible and immediately available for use [MSFC (07) Section 906.1].

Exception: In all educational (Group E) occupancies equipped throughout with an approved automatic sprinkler system, fire extinguishers shall be required only in laundry rooms, boiler and furnace rooms, mechanical and electrical rooms, garages, stages, projection booths, shops, laboratories, kitchens, locker rooms, janitors' closets, trash-collection rooms, storage rooms and similar areas.

In kitchens containing commercial cooking equipment that produces grease-laden vapors, a minimum rated 40B fire extinguisher shall be provided within 30 feet of travel distance. Cooking equipment involving vegetable or animal oils and fats shall be protected by a Class K rated portable fire extinguisher [MSFC (07) Section 904.11.5]. A placard shall be conspicuously placed near the Class K extinguisher that states that the fire protection system shall be activated prior to using the fire extinguisher.

For additional information on Class K fire extinguishers please refer to the State Fire Marshal Division Information Sheet titled *Class K Fire Extinguishers*.

All maintenance, servicing and recharging of fire extinguishers shall be performed by trained

personnel annually [MSFC (07) Section 906.2].

Complies ☐ Does not comply ☐

SECTION 10 – BUILDING SERVICES AND SYSTEMS

10.1 Heating Appliances – New and Existing

Furnaces, boilers, water heaters and other heating appliances shall be listed by a nationally recognized testing agency [MSFC (07) Section 603.5].

All heating appliances installed in garages shall be at least 18” above the floor.

Unlisted appliances may be installed where permitted by the code official, provided clearances from combustibles are maintained in accordance with the Mechanical Code.

Heating appliances shall be installed in accordance with the manufacturer’s instructions and the State Building, Mechanical and Electrical Codes [MSFC (07) Section 603.5.2].

Portable unvented fuel-fired heating equipment are prohibited within educational occupancies [MSFC (07) Section 603.4].

Complies ☐ Does not comply ☐

10.2 Electrical Services – New and Existing

Identified electrical hazards shall be corrected in accordance with the MSFC (07) Section 605 and the State Electrical Code [MSFC (07) 605.1].

Multiplug adapters, such as cube adapters, unfused plug strips or any other device not complying with the State Electrical Code shall be prohibited [MSFC (07) Section 605.4].

Relocatable power taps shall be of the polarized or grounded type, equipped with overcurrent protection, and shall be listed [MSFC (07) Section 605.4.1].

Extension cords shall not be used as a substitute for permanent wiring. Extension cords shall be used only with portable appliances [MSFC (07) Section 605.5].

Electrical appliances and fixtures shall be tested and listed by an approved agency and installed in accordance the manufacture’s instructions [MSFC (07) Section 605.7].

Emergency and standby power systems shall be provided for fire alarm systems, smoke control systems, exit signs, means of egress illumination, accessible means of egress, elevators, horizontal sliding doors, high-rise buildings and others [MSFC (07) Section 604].

Complies ☐ Does not comply ☐

10.3 Gas Meters and Piping – New and Existing

Above-ground gas meters, regulators and piping subject to damage shall be protected by a barrier

complying with MSFC (07) Section 312 or otherwise protected in an approved manner [MSFC (07) 603.9].

Complies ☐ Does not comply ☐